

# PREFACE

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Implanted man-made foreign bodies as substitutes for damaged or poorly functioning tissue structures have been a goal of physicians and surgeons for most of recorded history. The use of a foreign body for drainage of the urinary tract has been known and described for more than 5000 years. Metal bladder catheters introduced through the urethra were described by the Romans, evidence of which was found in Pompeii. Only in the past three decades, however, have materials been available for permanent implantation that are accepted by the body, infrequently extruded, and uncommonly affected by device infection. These materials, developed through research begun by the space program in the 1960s, have been fashioned into prostheses for use in plastic surgery, orthopedics, otorhinolaryngology, vascular surgery, cardiac surgery, and urologic surgery. Owing to the host acceptance of these materials and modern antibiotic prophylaxis to decrease the incidence of infection, urologic conditions can be treated with increasing success using these prosthetic devices. Use of prosthetic devices and material have now become an integral part of most surgical specialties, and continue to be more important in reconstructive substitute surgery in urology as well as for urinary drainage.

The first widely used and accepted prosthetics in urologic surgery were the testicular prostheses. Although currently there is some controversy about the long-term effects of silicone gel-filled and silicone foam-filled testicular prostheses designed similar to breast prostheses, a large number of testicular prostheses of various designs have been implanted with excellent cosmetic results and few reported complications. After a hiatus of almost a decade, these prosthetic devices are back, providing excellent prosthetic and cosmetic support for patients who have lost or not developed normal testes.

Prosthetic implants to restore erectile function were first attempted in the 1930s. Because of material difficulties, however, acceptable prostheses were not available until the 1970s. These devices are currently in worldwide use for restoring erectile function in patients with significant erectile dysfunction. Early prosthetic implants using rib cartilage and acrylic implanted beneath Buck's fascia were poorly tolerated and resulted in inadequate erectile function. These early prostheses were fraught with infection, extrusion, and pain, and functioned poorly in restoring the ability for patients to be sexually active. The creation of intracorporal cylinders of both semirigid and

inflatable type in the early 1970s revolutionized the implantation of penile prostheses. With continued development and refinement, these prostheses are currently available in different forms. The modern penile implant can be expected to provide excellent function, satisfactory cosmetic results, and long-term reliability. Not only are these prostheses satisfactory for routine implantation, but they are also useful for penile reconstruction, the treatment of Peyronie's disease, priapism, and other complex penile conditions.

The use of prosthetic devices for the treatment of urinary incontinence has been long dreamed of. The introduction of several artificial urinary sphincters in the early 1970s has now narrowed to a single currently available inflatable artificial urinary sphincter as well as two injectable bulking agents. The refinement of this device over the past thirty years has resulted in a reliable, effective device for the management of intractable urinary continence from a variety of etiologies. The artificial urinary sphincter has been modified, refined, and perfected such that the reliability is excellent and the versatility of the device allows implanting surgeons to use the artificial urinary sphincter for incontinence in males and females of all ages, as well as in bladder reconstructive surgery. New uses in fecal incontinence are beginning to demonstrate effectiveness.

The cornerstone of prosthetic devices in the urinary tract, however, are those used for urinary drainage. Indwelling urinary stents have only been available for the past 20 years. Stents, modifications of the original urethral catheters, can now drain the kidneys, ureter, and bladder, and can be left indwelling in the prostate and urethra. These stents are now refined to a point where they are comfortable for patients, resistant to incrustation, resistant to infection, and yet provide excellent short- and long-term drainage of the urinary tract without external appliances or tubes.

*Urologic Prostheses* was compiled to provide a broad view of prosthetic devices used in urologic surgery. In keeping with the recent advances in urologic prosthetic surgery, contributors of recognized authority have been assembled to write expert articles for this book. Each contributing group has been able to bring to their subject significant experience in that area of prosthetic urology to share this experience with the readership and their demonstrated skill in a particular area. Although the reader will note some repetition of subject matter, there will be benefit of this repetition because differences of opinion among various authors in approaching the choice of prosthetic devices and management of specific problems in urologic prosthetic surgery will provide the reader with a complete view of this subspecialty. The clear,

concise, and complete discussion of prosthetic urology in this book was made possible by the fine work of the individual contributors, each of whom provided material that is instructional and valuable to all practitioners of urologic prosthetic surgery whether they are at the beginning of their practice or experts in the field of reconstructive and prosthetic surgery. Owing to the wide variety of prosthetic devices available and the recent introduction of some of these technologies, authors have skillfully placed the newer technologies of prosthetic surgery in their proper perspective to assist the reader in assessing their places in urologic surgical practice.

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**Urologic Prostheses**

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